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Driver Perspectives on ITS Traveler Information

from research to reality

BRIEF

RESEARCH DEVELOPMENT & TECHNOLOGY TRANSFER

Intelligent Transportation Systems (ITS) link technologies such as information processing, communications and electronics to urban and rural transportation systems in innovative ways that save drivers time, money – and sometimes their lives. ITS systems are frequently employed to give traveler information for enhanced highway safety and usability. These strategies include changeable message signs (CMS), dynamic route guidance or "trailblazer" devices, closed-circuit video images of traffic conditions, cellular 911 services and highway advisory radio.

What's the Problem?

WisDOT came to recognize a serious shortfall in its understanding of *drivers'* perspectives on traveler information aspects of ITS. The success of ITS deployment strategies depends heavily on the degree of driver acceptance. What do drivers think of various technologies? What do they want from ITS systems? Knowledge of drivers' reactions to, and impressions of, various ITS elements is essential to making good deployment decisions.

Research Objectives

The study had the primary goal of developing an easy-to-scan digest of existing research – an annotated bibliography – that would be immediately useful to all traffic planners and engineers. Knowledge gaps would also be identified for follow-up research with partners in Wisconsin and other states. The digest would identify current best practices for delivering traveler information to drivers, providing a breakdown of driver information demand by different market segments. The digest would also: provide a summary of driver perceptions of different technologies and media for delivering information; list the information that drivers want from such media; and make recommendations for future research.

Process

A literature and best practices scan was carried out to determine the existing body of knowledge about drivers' views on ITS. The scan required about three months, yielded 158 research reports and journal articles, plus many interviews at FHWA, DOTs and research centers nationwide. Reading and winnowing out the relevant articles and conclusions took about another three months, resulting in the annotated bibliography of print and Web documents.

Results

The report identifies what drivers want most, based on existing research: more information at the right time and enough information to weigh priorities and make a decision. Independent of media or technology, drivers want to know: what's the problem, how long is the delay, what's the alternative, and how does that compare with the delay itself.

In detail, the report examines ITS users by type of person, type of trip and type of technology or media. It provides a number of helpful conclusions from the literature:

- Existing media such as radio, television and CMS are very popular (used by 60-80% of commuters), even though their current usefulness is limited. Drivers generally want to receive information as they listen to or watch other programming or observe their environment;
- Improving existing media may be a powerful tool at modest cost;
- No single information format is useful to all trips;
- The highest demand for information is by commuters and by drivers on special trips.

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Travelers want to know: what's the problem, how long is the delay, what's the alternative, and how does that compare with the delay itself?

"This initial look at the literature surprised us. A lot of research has been done on driver perspectives, and we'll be able to build on that work."

- John Corbin, WisDOT State Traffic Engineer

Implementation

Recent guidance from a national pooled-fund study on CMS operations will be incorporated into WisDOT's traffic operations guide documents as a first step toward improving existing media. In addition, promotion of more effective use of permanent and portable CMSs will be accomplished by offering training of contractors and WisDOT district staff.

Further Research

The report identified 22 ITS elements in need of further research, including passenger safety and security applications, school bus applications, and emergency notification and evacuation applications. The list of needs was created by comparing the topics in the existing literature to user services listed in the National ITS Architecture.

Priority research needs include:

- improving radio, television and CMS information;
- general guidance for implementation of ITS for work zones;
- intercity or rural driver needs;
- truck driver needs;
- public safety/homeland security needs; and
- driver information for infrequent trips (vacation, sporting events, etc.)

Future research will be explored through Traffic Mangement Center pooled fund study and with partners such as the Gary-Chicago-Milwaukee ITS Priority Corridor Program, the Midwest University Transportation Center at UW-Madison, the University of Minnesota's ITS Center of Excellence and the Upper Great Lakes ITS Research Center.

Benefits

In addition to identifying the need to focus on improving already existing ITS traveler information systems, the study compiled a significant body of existing research on driver perspectives to be used by managers and policy makers in making future decisions. Ultimate benefits will be measured in more effective communication of traveler information, enhanced driver control over travel time and safer highways.

For more information

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Perspectives and Expectations of Drivers: A Literature and Best Practices Scan

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